



Dart Aerospace Ltd.  
1270 Aberdeen St  
Hawkesbury, ON  
K6A 1K7  
Canada

Tel (613) 632-5200

**D3391-011**  
**Job Sheet 17479**



**D3391-011**

**Part No:** D3391-011

**Job Qty:** 1 ea

**Part Name:** Fwd Tube Assembly



**Part Weight:** 0 lbs

**Status:** Scheduled

**Priority:** Medium

**Job Created:** 5/14/18

**Job Tracking No:**

**Due Date:** 6/14/18

**Created By:** Michelle Gagnon-Donovan

**Type:** SOLD

**Description:**

**Note:** DWG REV J SHEETS 3,5 IPP A 05.09.13 New issue KJ/JLM IPP B IPP C 07.03.13 revF dwg ec IPP D 07.11.01 ecn1053P EC IPP Rev:E ECN 1056 07-11-12 DD verified by:EC IPP Rev:F 08-09-08 new process (ecn 08-510) DD verified by:EC IPP Rev:G 08-09-10 revH as per dwg DD verified by:EC IPP Rev:H 10.04.07 add part in bom DD verified by:JLM IPP Rev:I 11.11.14 AS PER REV.I DD verified by:JLM

**Ship Via:**

**Bill of Materials**



Dart Aerospace Ltd.  
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TEL.: 1 613 632-5200  
Email: sales@dartaero.com  
www.dartaerospace.com

**Container No:** S076677



**Part:** D3391-011

**Job No:** 177479

**Serial No/Batch:** S076677

**Revision:**

**Inspector:**

**Exp Date:** 05/31/2018

**Instructions:**

**Date:** 05/31/18



## Job Routing

| Op No | Operation              | Qty   | Start Date | Due Date | Standard  |         | Workcenter/Supplier   |           | Sign-off       |
|-------|------------------------|-------|------------|----------|-----------|---------|-----------------------|-----------|----------------|
|       |                        |       |            |          | Setup hrs | Run Hrs | Workcenter / Supplier | Lead Time |                |
| 90    | Start up Operation     | 1 Ea  | 6/14/18    | 6/14/18  | 0.00      | 0.00    | Start Up Skid tubes-1 |           | MAG            |
| 100   | Skid tubes             | 1 pcs | 6/14/18    | 6/14/18  | 0.00      | 0.91    | Skid tubes-3          |           | MAG            |
| 110   | CNC Bend Skid tubes    | 1 pcs | 6/14/18    | 6/14/18  | 0.00      | 1.05    | CNC Bend Skid tube    |           | MAG            |
| 120   | QC                     | 1 pcs | 6/14/18    | 6/14/18  | 0.00      | 0.00    | QC5                   |           | BE             |
| 130   | CNC Vertical Machining | 1 pcs | 6/14/18    | 6/14/18  | 2.76      | 1.05    | HAAS1-3               |           | Kt 2018-06-12  |
| 140   | QC                     | 1 pcs | 6/14/18    | 6/14/18  | 0.00      | 0.00    | QC2 Machining-2       |           | Kt 2018-06-12  |
| 150   | Mill Conv              | 1 pcs | 6/14/18    | 6/14/18  | 0.00      | 0.26    | Mill Conv 1           |           |                |
| 160   | QC                     | 1 pcs | 6/14/18    | 6/14/18  | 0.00      | 0.00    | QC2 Machining-2       |           | 18/6/18 J.C.   |
| 170   | QC                     | 1 pcs | 6/14/18    | 6/14/18  | 0.00      | 0.00    | QC8 Machining-2       |           | 18/10/18/20    |
| 180   | Skid tubes             | 1 pcs | 6/14/18    | 6/14/18  | 0.00      | 0.91    | Skid tubes-3          |           | MAG            |
| 190   | QC                     | 1 pcs | 6/14/18    | 6/14/18  | 0.00      | 0.00    | QC5                   |           | 38             |
| 200   | HandFinish             | 1 pcs | 6/14/18    | 6/14/18  | 0.00      | 0.38    | HandFinish1           |           | SA 18-07-18    |
| 210   | QC                     | 1 pcs | 6/14/18    | 6/14/18  | 0.00      | 0.00    | QC7-2                 |           | MAG            |
| 220   | Skid tubes             | 1 pcs | 6/14/18    | 6/14/18  | 0.00      | 0.91    | Skid tubes-3          |           | MAG            |
| 230   | QC                     | 1 pcs | 6/14/18    | 6/14/18  | 0.00      | 0.00    | QC5                   |           | 38             |
| 235   | HandFinish             | 1 pcs | 6/14/18    | 6/14/18  | 0.00      | 0.38    | HandFinish2           |           | D.R. 18-09-10  |
| 240   | SprayPaint             | 1 pcs | 6/14/18    | 6/14/18  | 0.00      | 0.64    | Spray Paint           |           | N/R DAS        |
| 250   | QC                     | 1 pcs | 6/14/18    | 6/14/18  | 0.00      | 0.00    | QC14                  |           | SEP 20 2018 38 |
| 255   | Skid tubes             | 1 pcs | 6/14/18    | 6/14/18  | 0.00      | 0.91    | Skid tubes-3          |           | 18-9-21 9-89   |
| 257   | QC                     | 1 pcs | 6/14/18    | 6/14/18  | 0.00      | 0.00    | QC5                   |           | 18-9-24        |
| 260   | Packaging              | 1 pcs | 6/14/18    | 6/14/18  | 0.00      | 0.00    | Packaging3-1          |           | 18-9-24        |
| 280   | QC21-SA                | 1 Ea  | 6/14/18    | 6/14/18  | 0.00      | 0.00    | QC21                  |           | 18-09-24       |

Part Op 100 - Cut as per dwg.

Descriptions: 110 - Bend as per Dwg D3391

130 - 1-Machine as per Folio FA590 Rev. \_\_\_\_ &amp; Dwg D3391 Rev. \_\_\_\_ Identify as D3391-1

150 - 1-Drill .1875" at end of tube as per Dwg D3391

180 - 1- Drill Remaining two holes for tow cap using DT 8819 Locating off of .1875" holes drilled in previous step (Do not open tow cap holes to finish size) 2- Drill and float bag holes as per Dwg D3391 using DT8798 (DRILL ALL HOLES) 3- Open tow cap holes to .208" as per Dwg D3391 4-Open Tow Ring hole to .640" as per Dwg D3391 5- open float bag holes 0.328" and counter sink as per dwg D3391 6-Deburr and scribe batch # inside aft end 7- transfer drill D3391-011 with D3391-013 \*\*\*\*NO WEARPLATE HOLES ARE TRANSFER DRILLED\*\*\* MID TUBE BATCH

# 5077079

200 - REALODINE AS PER PAR09-043

220 - 1-Install crossbolt spacers per dwg D3391 A/R Magnabond 6398 batch: 5080785 2- Grind flush 3- back drill crossbolt if necessary

235 - AND REALODINE AS PER PAR09-043

240 - PRIME AS PER DWG AND QSI005 4.2.1.3.3 PRIMER BATCH: \_\_\_\_\_ PAINT AS PER DWG AND QSI005 4.2.2.4 PAINT: \_\_\_\_\_

255 - \*\*\*\* install D3591-1 spacer as per DSI9364 and wearplate as per DWG 13

SEP 17 2018

13  
2-89

SEP 19 2018

## Job BOM

| Part / Item   | Component Name     | Quantity      | Operation             | Container   |
|---------------|--------------------|---------------|-----------------------|-------------|
| D6013-047     | Skid tube Material | 1 Ea (1 ea)   | 90-Start up Operation | B96064      |
| D3670-4-200   | Bushing            | 9 Ea (9 ea)   | 220-Skid tubes        | 5077425     |
| AEIS-1032-225 | Insert             | 10 Ea (10 ea) | 255-Skid tubes        | 5058130     |
| AN3C4A        | Bolt               | 10 Ea (10 ea) | 255-Skid tubes        | 5055223     |
| D3401-041     | Tow Cap Assembly   | 1 Ea (1 ea)   | 255-Skid tubes        | 5071282     |
| D3672-1       | Washer, Phenolic   | 4 Ea (4 ea)   | 255-Skid tubes        | 5163255-1   |
| D4095-051     | Wearpad Fwd        | 1 Ea (1 ea)   | 255-Skid tubes        | M159902-124 |
| NAS1149C0332R | Washer             | 10 Ea (10 ea) | 255-Skid tubes        | 5071663     |

| Job Allocations                    |                |          |           |           |
|------------------------------------|----------------|----------|-----------|-----------|
| Operation                          | Component Part | Required | Inventory | Allocated |
| 90-Start up Operation              | D6013-047      | 1        | 45        | 0         |
| 220-Skidtubes                      | D3670-4-200    | 9        | 48        | 0         |
| 255-Skidtubes                      | AELS-1032-225  | 10       | 0         | 0         |
|                                    | AN3C4A         | 10       | 2,387     | 0         |
|                                    | D3401-041      | 1        | 0         | 0         |
|                                    | D3672-1        | 4        | 1,063     | 0         |
|                                    | D4095-051      | 1        | 22        | 0         |
|                                    | NAS1149C0332R  | 10       | 5,560     | 0         |
| Part Specifications                |                |          |           |           |
| Specifications could not be found. |                |          |           |           |

Plex 5/14/18 10:29 AM Dart.Gagnon.Michelle



# D3391-041/-043 FLOAT SKIDTUBE ASSEMBLY PARTS LIST

| QTY<br>-041 | QTY<br>-043 | PART NUMBER   | DESCRIPTION             |
|-------------|-------------|---------------|-------------------------|
| X           |             | D3391-041     | FLOAT SKIDTUBE ASSEMBLY |
|             | X           | D3391-043     | FLOAT SKIDTUBE ASSEMBLY |
| 1           |             | D3391-011     | FWD TUBE ASSEMBLY       |
| 1           |             | D3391-013     | MID TUBE ASSEMBLY       |
| 1           |             | D3391-015     | AFT TUBE ASSEMBLY       |
|             | 1           | D3391-021     | FWD TUBE ASSEMBLY       |
|             | 1           | D3391-023     | MID TUBE ASSEMBLY       |
|             | 1           | D3391-025     | AFT TUBE ASSEMBLY       |
| 2           | 2           | D3591-1       | BUSHING                 |
| 4           |             | D3672-3       | WASHER                  |
| 1           | 1           | D4095-041     | WEARSHOE                |
| 1           | 1           | D4095-043     | WEARSHOE                |
| 1           | 1           | D4095-045     | WEARSHOE                |
| 1           | 1           | D4095-047     | WEARPAD                 |
| 1           | 1           | D4095-049     | WEARPAD                 |
| 1           | 1           | D4095-051     | WEARSHOE                |
| 24          | 24          | AN3C4A        | BOLT                    |
| 4           | 4           | AN3C8A        | BOLT                    |
| 10          | 10          | AN3C7A        | BOLT                    |
| 28          | 28          | NAS1149C0332R | WASHER                  |
| 10          | 10          | NAS1149C0532R | WASHER                  |
| 4           |             | MS27039C4-12  | SCREW                   |
| 4           |             | NAS1149C0432R | WASHER                  |

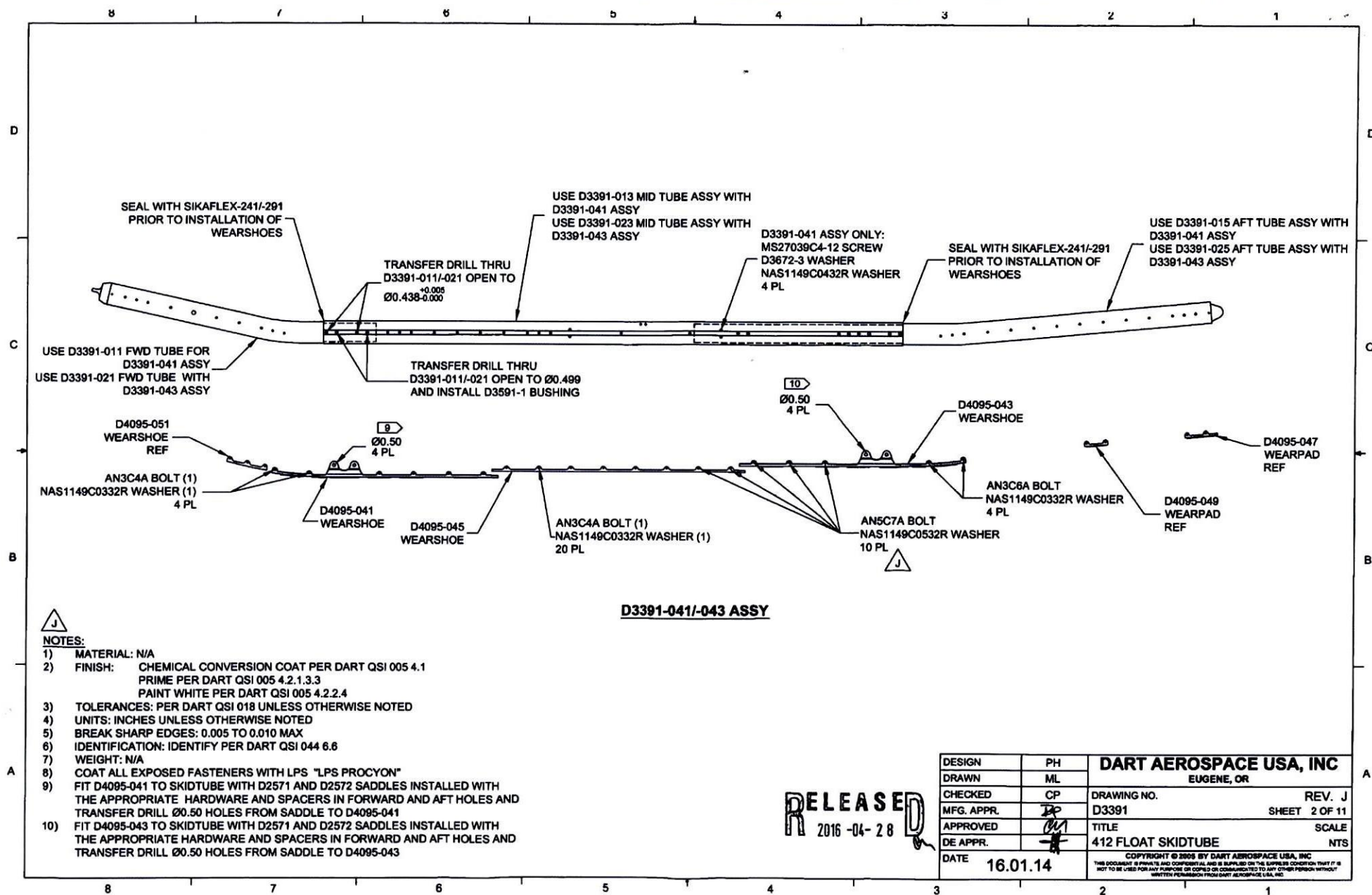
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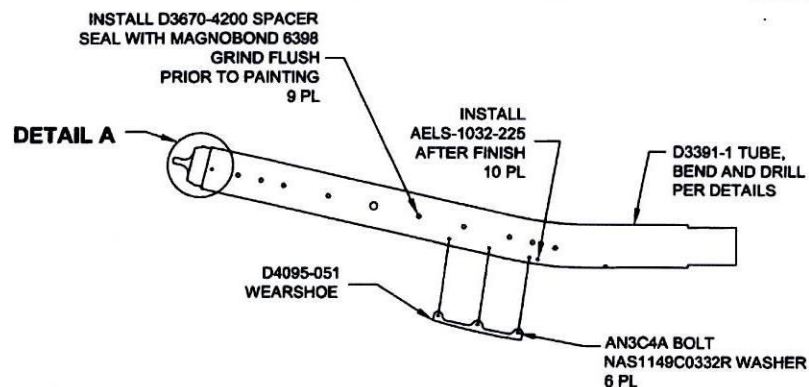
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WITHOUT NOTICE  
WORK ORDER  
NO. 177479

MAY 14 2018

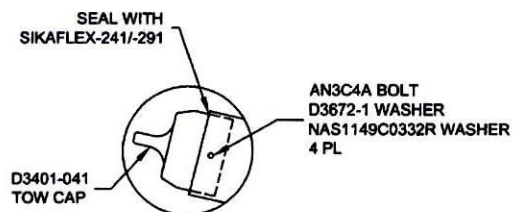
|            |                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                     |                         |
|------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|
| J          | INCORPORATED DSI 9733, REFORMAT DRAWING CHANGED CBORE DEPTH (ZN D2-8, D2-9), REVISED TABLES, REPLACED POWDER COAT WITH PAINT                                                                                                                                                         | ML                                                                                                                                                                                                                                                                                  | 16.01.14                |
| I          | REMOVE GASKETS AND REPLACE ALL WEARSHOES; PARTS LIST UPDATE, ZN A8-1, ZN A8-2, ZN A8-4, ZN B6-8; LPS-3 COATING REMOVED FROM NOTE 2, ZN A3-1, ZN A3-2, REMOVED INSERT AELS-1032-130, ZN B6-4, B2-4, C7-8, C3-8; REMOVED HOLES, ZN D6-4 ZN D2-4, ZN D7-8, ZN D3-8                      | XDF                                                                                                                                                                                                                                                                                 | 11.10.13                |
| H          | DRAWING UPDATED TO CURRENT STANDARDS. SHT 1 PL ADDED D3591-1 BUSHING. ZN C8 Ø0.438 DIM WAS 4 PL. ADDED Ø0.499 DIM AND D3591-1 BUSHING. SHT 2 PL ADDED D3591-1 BUSHING. ZN C8 Ø0.438 DIM WAS 4 PL. ADDED Ø0.499 DIM AND D3591-1 BUSHING. (FOR FURTHER INFO SEE DSI 9384 & NCR 08-074) | AJS                                                                                                                                                                                                                                                                                 | 08.08.20                |
| G          | REPLACE NAS INSERTS W/ AELS INSERTS SWITCH TO D3870-XXXX SPACERS FOR INSTALLING FLOAT BAGS, DWG REORGANIZED FOR CLARITY                                                                                                                                                              | DC                                                                                                                                                                                                                                                                                  | 07.07.31                |
| F          | ADD SS WEARSHOE, GASKET REMOVE FWD SADDLE HOLE -011/-021                                                                                                                                                                                                                             | PH                                                                                                                                                                                                                                                                                  | 07.01.18                |
| E          | CHANGE TOLERANCE, EASE MANUFACTURE                                                                                                                                                                                                                                                   | PH                                                                                                                                                                                                                                                                                  | 06.04.25                |
| D          | UPDATE TOLERANCE, CHANGE HOLE SIZE                                                                                                                                                                                                                                                   | PH                                                                                                                                                                                                                                                                                  | 06.01.23                |
| C          | LENGTHEN AFT EXTENSION                                                                                                                                                                                                                                                               | PH                                                                                                                                                                                                                                                                                  | 05.09.27                |
| B          | DRAWING UPDATES                                                                                                                                                                                                                                                                      | PH                                                                                                                                                                                                                                                                                  | 05.06.10                |
| A          | NEW ISSUE                                                                                                                                                                                                                                                                            | PH                                                                                                                                                                                                                                                                                  | 05.02.07                |
| REV        | DESCRIPTION                                                                                                                                                                                                                                                                          | BY                                                                                                                                                                                                                                                                                  | DATE                    |
| DESIGN     | PH                                                                                                                                                                                                                                                                                   | DART AEROSPACE USA, INC<br>EUGENE, OR                                                                                                                                                                                                                                               |                         |
| DRAWN      | ML                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                     |                         |
| CHECKED    | CP                                                                                                                                                                                                                                                                                   | DRAWING NO.<br>D3391                                                                                                                                                                                                                                                                | REV. J<br>SHEET 1 OF 11 |
| MFG. APPR. |                                                                                                                                                                                                 | TITLE                                                                                                                                                                                                                                                                               | SCALE                   |
| APPROVED   |                                                                                                                                                                                                 | 412 FLOAT SKIDTUBE                                                                                                                                                                                                                                                                  | NTS                     |
| DE APPR.   |                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                     |                         |
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EON 16-56

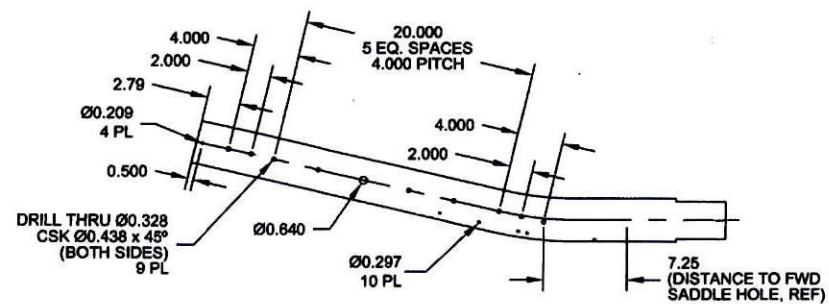




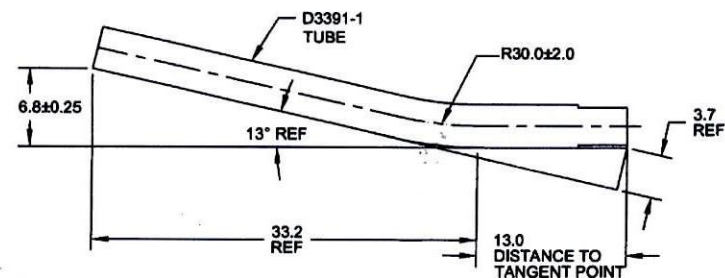
**D3391-011 FWD TUBE ASSEMBLY**  
ASSEMBLY DETAIL



**DETAIL A**  
SCALE 2X



**D3391-011 DRILLING DETAIL**



**D3391-011 BENDING DETAIL**  
(MAKE FROM D3391-1)

**D3391-011 FWD TUBE ASSEMBLY PARTS LIST**

| QTY<br>-011 | PART NUMBER   | DESCRIPTION       |
|-------------|---------------|-------------------|
| X           | D3391-011     | FWD TUBE ASSEMBLY |
| 1           | D3391-1       | TUBE              |
| 1           | D3401-041     | TOW CAP           |
| 9           | D3670-4200    | SPACER            |
| 4           | D3672-1       | WASHER            |
| 1           | D4095-051     | WEARSHOE          |
| 10          | AELS-1032-225 | INSERT            |
| 10          | AN3C4A        | BOLT              |
| 10          | NAS1149C0332R | WASHER            |

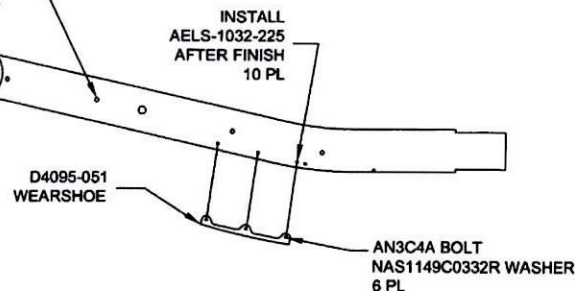
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|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------|---------------|
| DESIGN                                                                                                                                                                                                                              | PH                                                                                    | <b>DART AEROSPACE USA, INC</b>              |               |
| DRAWN                                                                                                                                                                                                                               | ML                                                                                    | EUGENE, OR                                  |               |
| CHECKED                                                                                                                                                                                                                             | CP                                                                                    | DRAWING NO.                                 | REV. J        |
| MFG. APPR.                                                                                                                                                                                                                          |  | D3391                                       | SHEET 3 OF 11 |
| APPROVED                                                                                                                                                                                                                            |  | TITLE                                       | SCALE         |
| DE APPR.                                                                                                                                                                                                                            |  | 412 FLOAT SKIDTUBE                          | NTS           |
| DATE                                                                                                                                                                                                                                | 16.01.14                                                                              | COPYRIGHT © 2005 BY DART AEROSPACE USA, INC |               |
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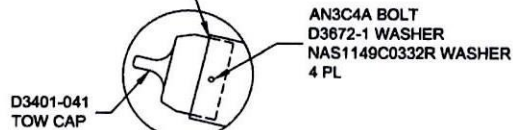
INSTALL D3670-4200 SPACER  
SEAL WITH MAGNOBOND 6398  
GRIND FLUSH  
PRIOR TO PAINTING  
4 PL

# DETAIL B



**D3391-021 FWD TUBE ASSEMBLY**  
ASSEMBLY DETAIL

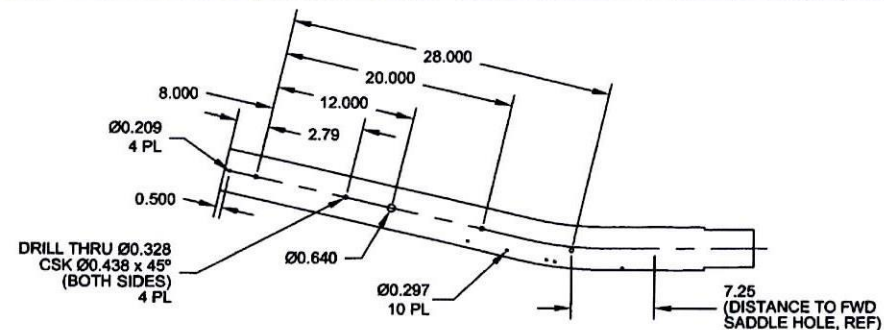
SEAL WITH  
SIKAFLEX-241/-291



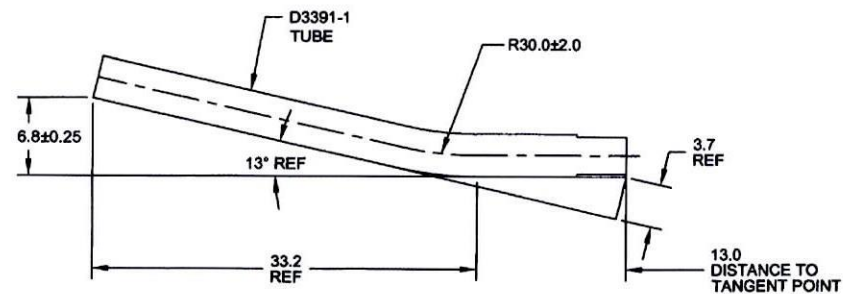
**DETAIL B**  
SCALE 2X

## D3391-021 FWD TUBE ASSEMBLY PARTS LIST

| QTY<br>-021 | PART NUMBER   | DESCRIPTION       |
|-------------|---------------|-------------------|
| X           | D3391-021     | FWD TUBE ASSEMBLY |
| 1           | D3391-1       | TUBE              |
| 1           | D3401-041     | TOW CAP           |
| 4           | D3670-4200    | SPACER            |
| 4           | D3672-1       | WASHER            |
| 1           | D4095-051     | WEARSHOE          |
| 10          | AELS-1032-225 | INSERT            |
| 10          | AN3C4A        | BOLT              |
| 10          | NAS1149C0332R | WASHER            |



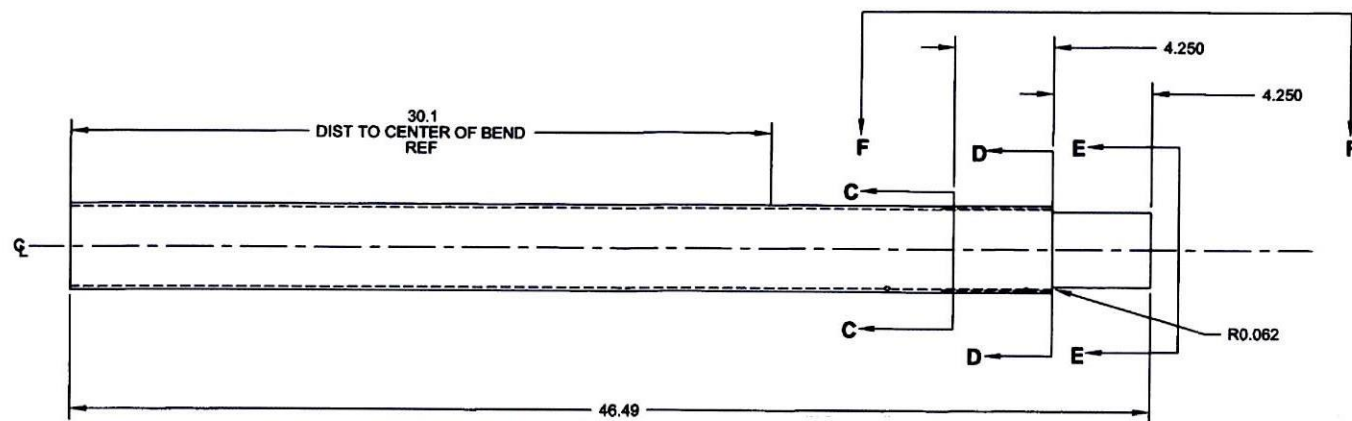
**D3391-021 DRILLING DETAIL**



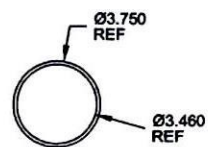
**D3391-021 BENDING DETAIL**  
(MAKE FROM D3391-1)

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2016-04-28

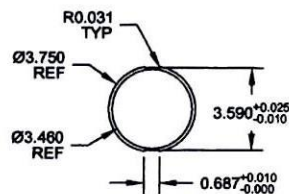
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|------------|----------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| DESIGN     | PH       | <b>DART AEROSPACE USA, INC</b>                                                                                                                                                                                                                                               |               |
| DRAWN      | ML       | EUGENE, OR                                                                                                                                                                                                                                                                   |               |
| CHECKED    | CP       | DRAWING NO.                                                                                                                                                                                                                                                                  | REV. J        |
| MFG. APPR. | DP       | D3391                                                                                                                                                                                                                                                                        | SHEET 4 OF 11 |
| APPROVED   | BY       | TITLE                                                                                                                                                                                                                                                                        | SCALE         |
| DE APPR.   | BY       | 412 FLOAT SKIDTUBE                                                                                                                                                                                                                                                           | NTS           |
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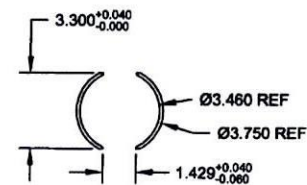
**D3391-1 TUBE**  
(MAKE FROM D6013-047 SKIDTUBE MATERIAL)



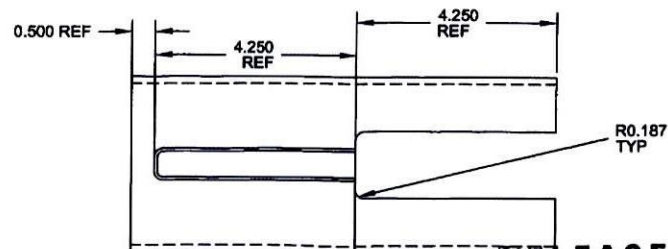
**SECTION C-C**



**SECTION D-D**



**SECTION E-E**



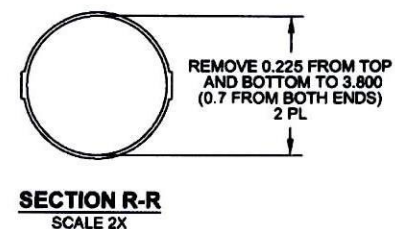
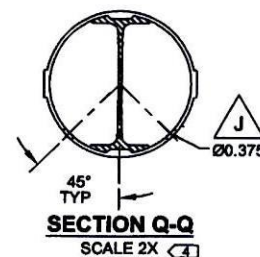
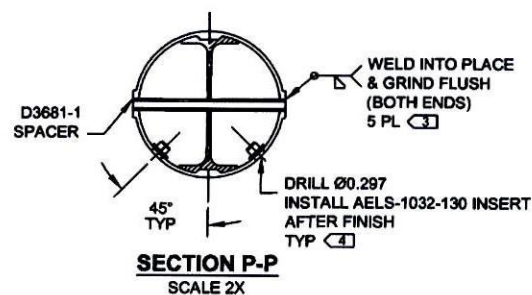
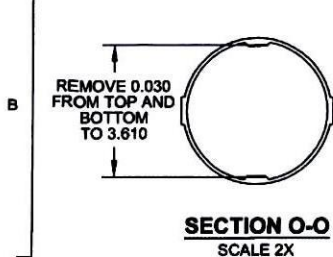
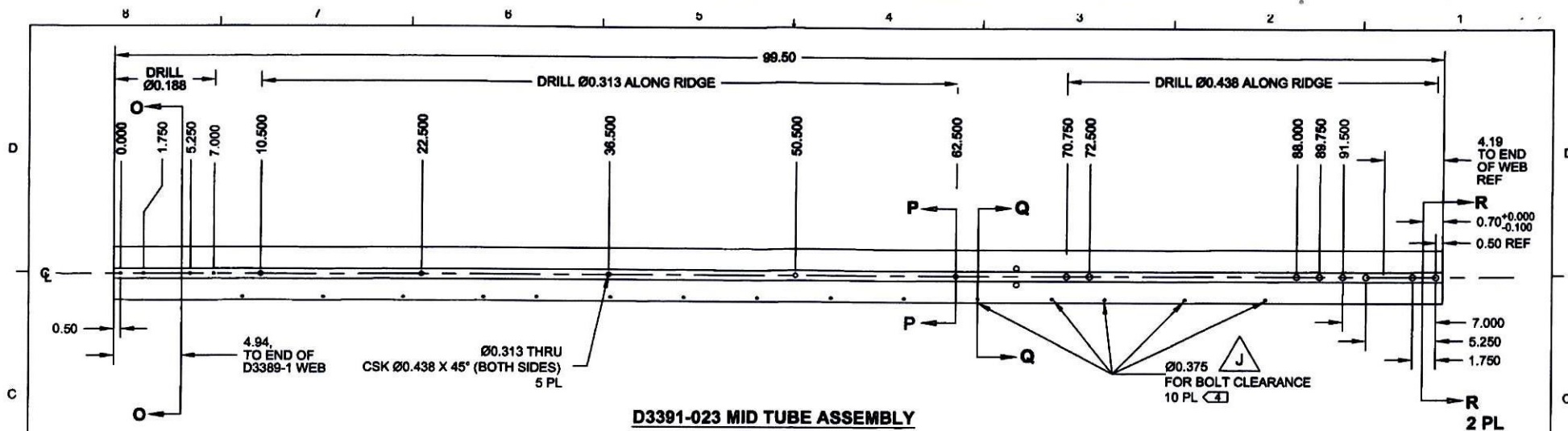
**VIEW F-F**  
SCALE 2X

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|            |          |                                                                                                                                                                                                                                                                                                            |               |
|------------|----------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| DESIGN     | PH       | <b>DART AEROSPACE USA, INC</b>                                                                                                                                                                                                                                                                             |               |
| DRAWN      | ML       | EUGENE, OR                                                                                                                                                                                                                                                                                                 |               |
| CHECKED    | CP       | DRAWING NO.                                                                                                                                                                                                                                                                                                | REV. J        |
| MFG. APPR. |          | D3391                                                                                                                                                                                                                                                                                                      | SHEET 5 OF 11 |
| APPROVED   |          | TITLE                                                                                                                                                                                                                                                                                                      | SCALE         |
| DE APPR.   |          | 412 FLOAT SKIDTUBE                                                                                                                                                                                                                                                                                         | NTS           |
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**D3391-023 MID TUBE ASSEMBLY PARTS LIST**

| QTY  | PART NUMBER   | DESCRIPTION       |
|------|---------------|-------------------|
| -023 |               |                   |
| X    | D3391-023     | MID TUBE ASSEMBLY |
| 1    | D2500-1-100   | EXTRUSION         |
| 1    | D3389-1       | WEB               |
| 5    | D3681-1       | SPACER            |
| 20   | AELS-1032-130 | INSERT            |



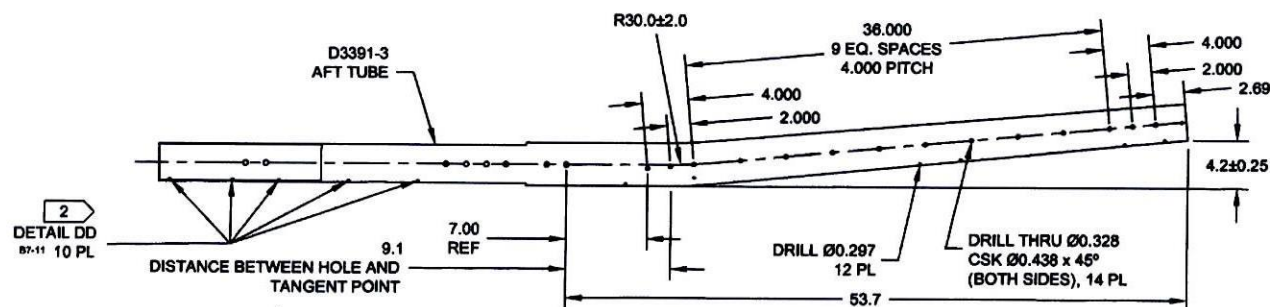
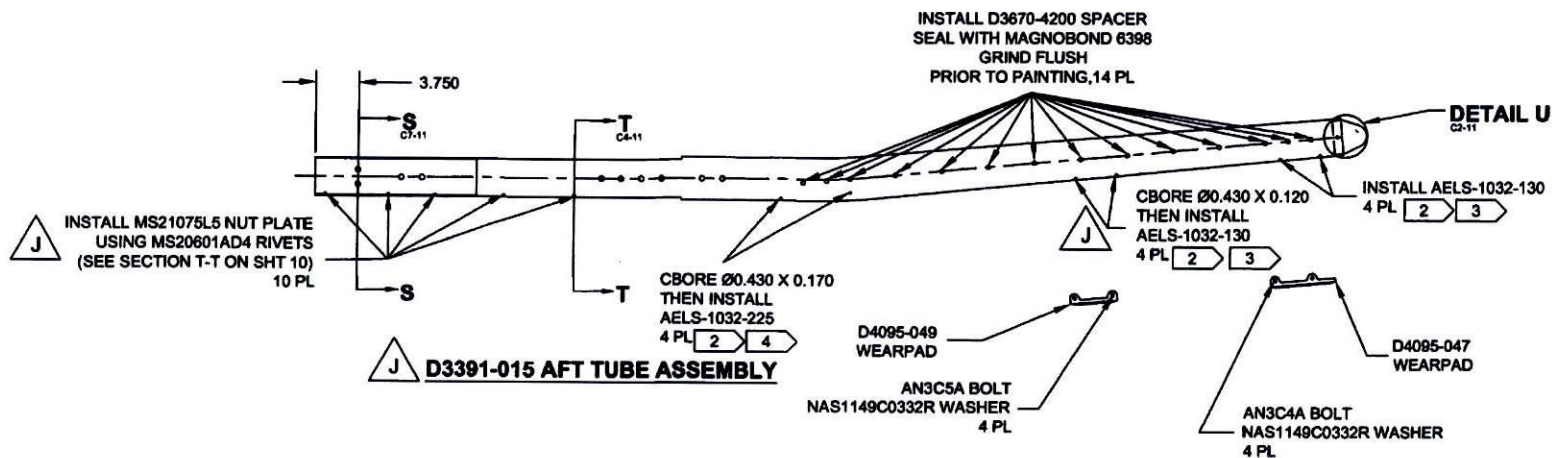
**D3391-023 MID TUBE ASSEMBLY**

- 1) MATERIAL: MAKE FROM D2500-1-100
- 2) INSTALL D3389-1 WEB TO OUTER TUBE USING SIKAFLEX-241/-291 PER QSI 015
- 3) WELDING: PER DART QSI 004
- 4) USE DART DRILL TEMPLATE DT8217 TO LOCATE AND DRILL Ø0.297 AND Ø0.375 HOLES FOR WEARSHOE INSERTS AND NUTPLATES. CBOR AS NOTED AND INSTALL INSERT/NUTPLATES EXCEPT WHERE INDICATED.

|            |           |                                                                                                                                                                                                                                                                                           |               |
|------------|-----------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| DESIGN     | PH        | <b>DART AEROSPACE USA, INC</b>                                                                                                                                                                                                                                                            |               |
| DRAWN      | ML        | EUGENE, OR                                                                                                                                                                                                                                                                                |               |
| CHECKED    | CP        | DRAWING NO.                                                                                                                                                                                                                                                                               | REV.          |
| MFG. APPR. | <i>CP</i> | D3391                                                                                                                                                                                                                                                                                     | SHEET 7 OF 11 |
| APPROVED   | <i>ML</i> | TITLE                                                                                                                                                                                                                                                                                     | SCALE         |
| DE APPR.   | <i>ML</i> | 412 FLOAT SKIDTUBE                                                                                                                                                                                                                                                                        | NTS           |
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2016-04-28





#### D3391-015 AFT TUBE ASSEMBLY PARTS LIST

| QTY | PART NUMBER   | DESCRIPTION         |
|-----|---------------|---------------------|
| X   | D3391-015     | AFT TUBE ASSEMBLY   |
| 1   | D2646         | AFT CAP             |
| 1   | D3391-3       | AFT TUBE            |
| 14  | D3670-4200    | SPACER              |
| 2   | D3672-1       | WASHER              |
| 1   | D4095-049     | WEARPAD             |
| 1   | D4095-047     | WEARPAD             |
| 6   | AELS-1032-130 | INSERT              |
| 4   | AELS-1032-225 | INSERT              |
| 4   | AL54-428-165  | INSERT              |
| 6   | AN3C4A        | BOLT                |
| 4   | AN3C5A        | BOLT                |
| 20  | MS20601AD4    | RIVET, BLIND        |
| 10  | MS21075L5     | NUT PLATE, FLOATING |
| 10  | NAS1149C0332R | WASHER              |

#### NOTES:

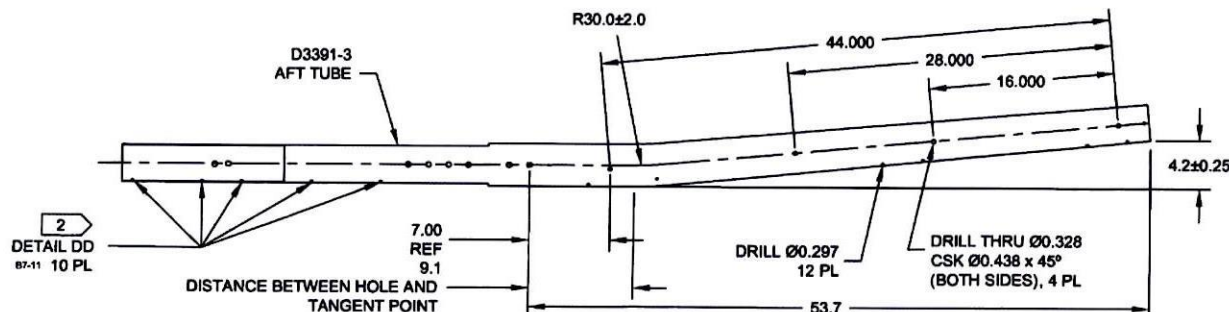
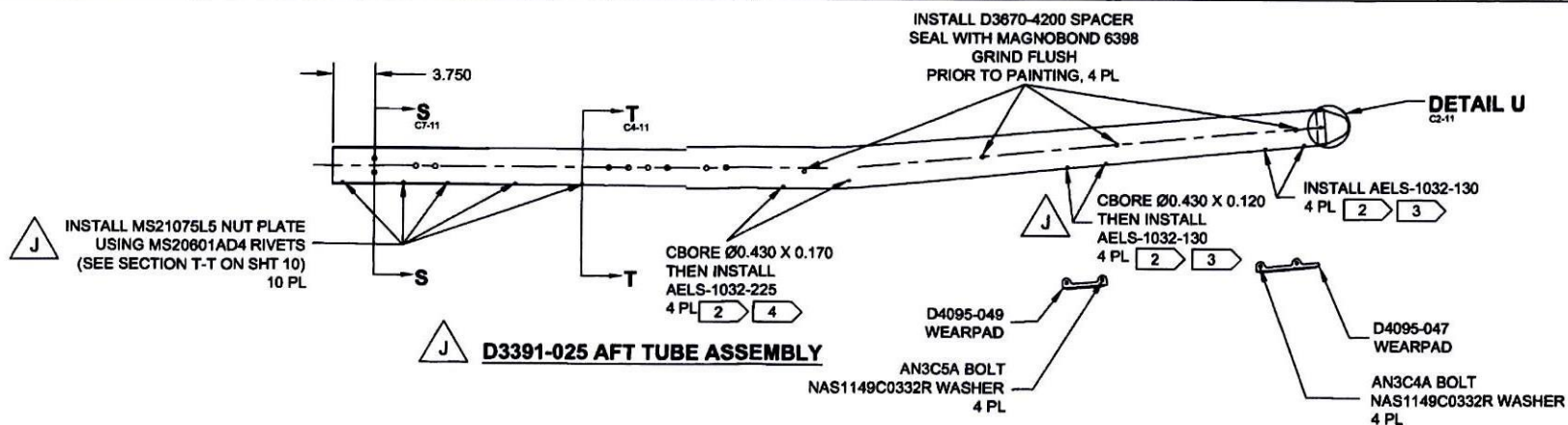
- 1) COAT ALL EXPOSED FASTENERS WITH LPS "LPS PROCYON"
- 2) USE DART DRILL TEMPLATE DT8217 TO LOCATE AND DRILL Ø0.297 AND Ø0.375 HOLES FOR WEARSHOE INSERTS AND NUTPLATES. CBORE AS NOTED AND INSTALL INSERT/NUTPLATES EXCEPT WHERE INDICATED.
- 3) ENSURE WALL THICKNESS IS BETWEEN 0.070 AND 0.130 BEFORE INSTALLING INSERT
- 4) ENSURE WALL THICKNESS IS BETWEEN 0.130 AND 0.225 BEFORE INSTALLING INSERT

#### BENDING AND DRILLING DETAIL

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2016-04-28

|            |          |                                             |               |
|------------|----------|---------------------------------------------|---------------|
| DESIGN     | PH       | DART AEROSPACE USA, INC                     |               |
| DRAWN      | ML       | EUGENE, OR                                  |               |
| CHECKED    | CP       | DRAWING NO.                                 | REV. J        |
| MFG. APPR. |          | D3391                                       | SHEET 8 OF 11 |
| APPROVED   |          | TITLE                                       | SCALE         |
| DE APPR.   |          | 412 FLOAT SKIDTUBE                          | NTS           |
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# D3391-025 AFT TUBE ASSEMBLY PARTS LIST

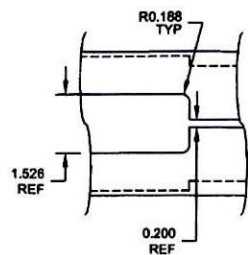
| QTY | PART NUMBER   | DESCRIPTION        |
|-----|---------------|--------------------|
| X   | D3391-025     | AFT TUBE ASSEMBLY  |
| 1   | D2646         | AFT CAP            |
| 1   | D3391-3       | AFT TUBE           |
| 4   | D3670-4200    | SPACER             |
| 2   | D3672-1       | WASHER             |
| 1   | D4095-049     | WEARPAD            |
| 1   | D4095-047     | WEARPAD            |
| 8   | AELS-1032-130 | INSERT             |
| 4   | AELS-1032-225 | INSERT             |
| 6   | AN3C4A        | BOLT               |
| 4   | AN3C5A        | BOLT               |
| 20  | MS20601AD4    | RIVET, BUND        |
| 10  | MS21075L5     | NUT PLATE FLOATING |
| 10  | NAS1149C0332R | WASHER             |

## NOTES:

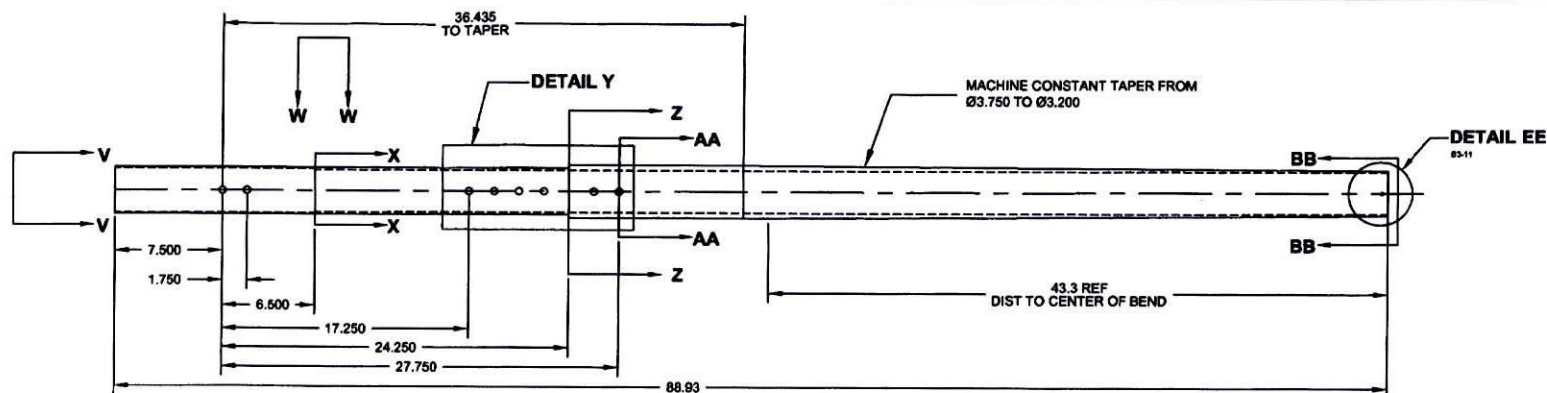
- 1) COAT ALL EXPOSED FASTENERS WITH LPS "LPS PROCYON"
- 2) USE DART DRILL TEMPLATE DT8217 TO LOCATE AND DRILL Ø0.297 AND Ø0.375 HOLES FOR WEARSHOE INSERTS AND NUTPLATES. CBORE AS NOTED AND INSTALL INSERT/NUTPLATES EXCEPT WHERE INDICATED. USE NUT PLATE DRILL JIG IF REQUIRED.
- 3) ENSURE WALL THICKNESS IS BETWEEN 0.070 AND 0.130 BEFORE INSTALLING INSERT
- 4) ENSURE WALL THICKNESS IS BETWEEN 0.130 AND 0.225 BEFORE INSTALLING INSERT

**RELEASED**  
2016-04-28

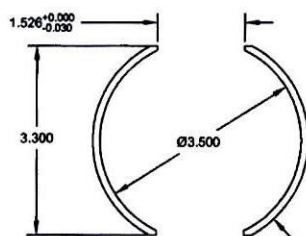
|            |          |                                                                                                                                                                                                                                                               |               |
|------------|----------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| DESIGN     | PH       | <b>DART AEROSPACE USA, INC</b>                                                                                                                                                                                                                                |               |
| DRAWN      | ML       | EUGENE, OR                                                                                                                                                                                                                                                    |               |
| CHECKED    | CP       | DRAWING NO.                                                                                                                                                                                                                                                   | REV. J        |
| MFG. APPR. |          | D3391                                                                                                                                                                                                                                                         | SHEET 9 OF 11 |
| APPROVED   |          | TITLE                                                                                                                                                                                                                                                         | SCALE         |
| DE APPR.   |          | AFT TUBE ASSEMBLY                                                                                                                                                                                                                                             | NTS           |
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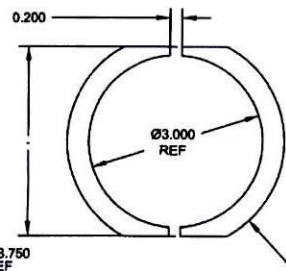
**VIEW W-W**  
SCALE 4X



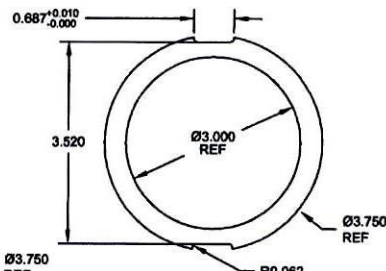
**D3391-3 AFT DRILLING AND CUTTING DETAIL**  
(MAKE FROM D6014-090)



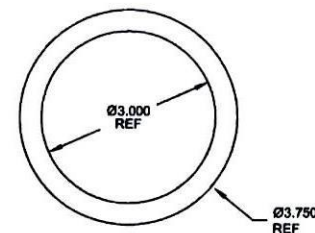
**SECTION V-V**  
SCALE 4X



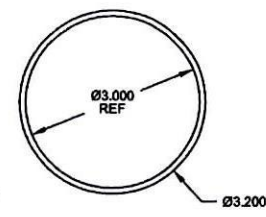
**SECTION X-X**  
SCALE 4X



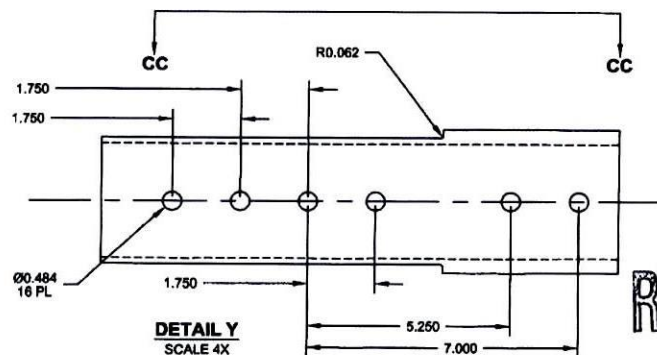
**SECTION Z-Z**  
SCALE 4X



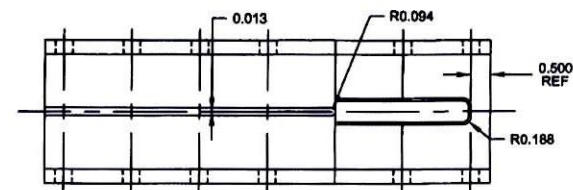
**SECTION AA-AA**  
SCALE 4X



**SECTION BB-BB**  
SCALE 4X



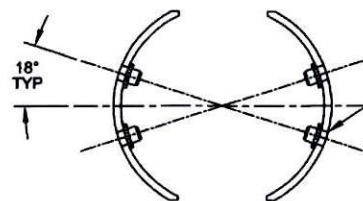
**DETAIL Y**  
SCALE 4X



**VIEW CC-CC**

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2016-04-28

|            |           |                                                                                                                                                                                                                                                                                                            |                |
|------------|-----------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|
| DESIGN     | PH        | <b>DART AEROSPACE USA, INC</b>                                                                                                                                                                                                                                                                             |                |
| DRAWN      | ML        | EUGENE, OR                                                                                                                                                                                                                                                                                                 |                |
| CHECKED    | CP        | DRAWING NO.                                                                                                                                                                                                                                                                                                | REV. J         |
| MFG. APPR. | <i>DF</i> | D3391                                                                                                                                                                                                                                                                                                      | SHEET 10 OF 11 |
| APPROVED   | <i>DF</i> | TITLE                                                                                                                                                                                                                                                                                                      | SCALE          |
| DE APPR.   | <i>DF</i> | 412 FLOAT SKIDTUBE                                                                                                                                                                                                                                                                                         | NTS            |
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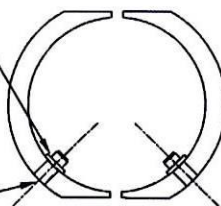


**SECTION S-S**  
SCALE 5X

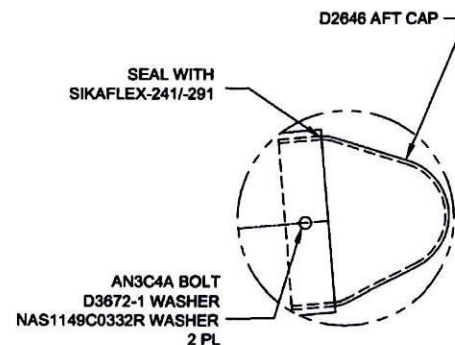
DRILL Ø0.391  
CBORE Ø0.516 X 0.040 DEEP  
INSTALL ALS4-428-165 INSERT  
4 PL

USE DT8217 DRILL TEMPLATE  
TO LOCATE HOLES AND OPEN  
TO Ø0.375

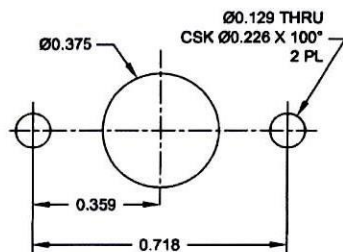
MS21075L5 NUTPLATE  
REF



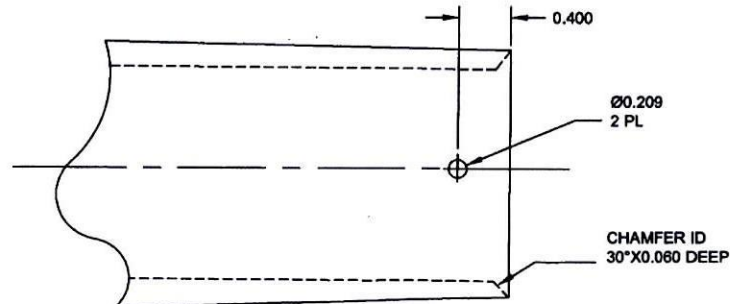
**SECTION T-T**  
SCALE 5X



**DETAIL U**  
SCALE 5X



**DRILLING DETAIL DD**  
SCALE 10X



**DETAIL EE**  
SCALE 2X

**NOTES:**  
1) USE INDUSTRY STANDARD NUT PLATE DRILL JIG IF REQUIRED.

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2016-04-28

|            |          |                                                                                                                                                                                                                                                                                          |                |
|------------|----------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|
| DESIGN     | PH       | <b>DART AEROSPACE USA, INC</b>                                                                                                                                                                                                                                                           |                |
| DRAWN      | ML       | EUGENE, OR                                                                                                                                                                                                                                                                               |                |
| CHECKED    | CP       | DRAWING NO.                                                                                                                                                                                                                                                                              | REV. J         |
| MFG. APPR. | YR       | D3391                                                                                                                                                                                                                                                                                    | SHEET 11 OF 11 |
| APPROVED   | ME       | TITLE                                                                                                                                                                                                                                                                                    | SCALE          |
| DE APPR.   | ME       | AFT TUBE ASSEMBLY                                                                                                                                                                                                                                                                        | NTS            |
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Dart Aerospace Ltd.  
1270 Aberdeen St  
Hawkesbury, ON  
K6A 1K7  
Canada

Tel (613) 632-5200

# **PURCHASE ORDER** **PO041016**

**Supplier:** ATE003-VC  
Atelier Debosselage  
358 Principale  
Calumet  
QC  
J0V 1B0 Canada  
Phone: 819 242 5633

**PO No:** PO041016  
**PO Date:** 9/14/18  
**Due Date:** 9/17/18  
**Purchase Order Revision:**  
**Revision Date:**  
**Ship-To Contact:** Lavoie, Chantal  
Phone: clavoie@dartaero.com

**Ship To:** 1270 Aberdeen Street  
Hawkesbury  
ON  
K6A 1K7 Canada  
Phone: 613-632-5200

**Via:** Ground  
**Pynt Terms:** Net 30

**Freight Terms:**  
**Special Comments:**

## Items

| Line Item           | Job    | Part      | Description                          | Status | Account | Due Date        | Order Quantity | Received Quantity | Balance  | Unit Price (CAD)  | Extended Price  |
|---------------------|--------|-----------|--------------------------------------|--------|---------|-----------------|----------------|-------------------|----------|-------------------|-----------------|
| 1                   | 177479 | D3391-011 | Fwd Tube Assembly<br>: Various STC's | Firmed | -       | 9/17/18         | 1 pcs          | 0 pcs             | 1 pcs    | \$380.00/pcs      | \$380.00        |
|                     |        |           |                                      |        |         | 1 X SEP 19 2018 |                |                   |          |                   |                 |
| 2                   | 178458 | D3391-013 | Mid Tube Assembly<br>: Various STC's | Firmed | -       | 9/17/18         | 1 pcs          | 0 pcs             | 1 pcs    | \$380.00/pcs      | \$380.00        |
|                     |        |           |                                      |        |         | 1 X SEP 19 2018 |                |                   |          |                   |                 |
|                     | 178430 |           |                                      | Firmed | -       | 9/17/18         | 1 pcs          | 0 pcs             | 1 pcs    | \$380.00/pcs      | \$380.00        |
|                     |        |           |                                      |        |         | 1 X SEP 19 2018 |                |                   |          |                   |                 |
| <b>Sub Total:</b>   |        |           |                                      |        |         |                 | <b>2</b>       | <b>0</b>          | <b>2</b> |                   | <b>\$760.00</b> |
| 3                   | 178431 | D3391-015 | Aft Tube Assembly<br>: Various STC's | Firmed | -       | 9/17/18         | 1 pcs          | 0 pcs             | 1 pcs    | \$380.00/pcs      | \$380.00        |
|                     |        |           |                                      |        |         | 1 X SEP 19 2018 |                |                   |          |                   |                 |
|                     | 178460 |           |                                      | Firmed | -       | 9/17/18         | 1 pcs          | 0 pcs             | 1 pcs    | \$380.00/pcs      | \$380.00        |
|                     |        |           |                                      |        |         | 1 X SEP 19 2018 |                |                   |          |                   |                 |
| <b>Sub Total:</b>   |        |           |                                      |        |         |                 | <b>2</b>       | <b>0</b>          | <b>2</b> |                   | <b>\$760.00</b> |
| <b>Grand Total:</b> |        |           |                                      |        |         |                 |                |                   |          | <b>\$1,900.00</b> |                 |

## Order Notes

Terms & Condition of Purchasing(Suppliers) and Procurement Quality Clauses are an integral part of our AS9100 requirements. To learn in detail, please visit [www.dartaerospace.com](http://www.dartaerospace.com) for further explanation.

Plex 9/17/18 9:00 AM dart.lavoie.chantal





Dart Aerospace Ltd.  
1270 Aberdeen St  
Hawkesbury, ON  
K6A 1K7  
Canada

Tel (613) 632-5200  
Fax 613 632-5246

## SUBCONTRACT SHIPPER

### SUBCONTRACT SHIP TO

**Ship To:** Atelier Debosselage  
358 Principale  
Calumet, QC J0V 1B0 Canada  
**Phone:** 819 242 5633 **Fax:**

### SHIPPER

**Shipper No:** 624  
**Shipper Date:** 9/17/18  
**Carrier:** \*  
**Ship Via:**  
**Vehicle Reg:**  
**Note:**  
**Freight Terms:**

### Part Information

**Part No:** D3391-011  
**Cust Part No:**  
**Reference No:**  
**Part Information Note:** DWG REV J SHEETS 3,5 IPP A 05.09.13 New issue  
KJ/JLM IPP B IPP C 07.03.13 revF dwg ec IPP D  
07.11.01 ecn1053P EC IPP Rev:E ECN 1056 07-11-  
12 DD verified by:EC IPP Rev:F 08-09-08 new  
process (ecn 08-510) DD verified by:EC IPP Rev:G  
08-09-10 revH as per dwg DD verified by:EC IPP  
Rev:H 10.04.07 add part in bom DD verified by:JLM  
IPP Rev:I 11.11.14 AS PER REV.I DD verified by:JLM  
**Name:** Fwd Tube Assembly  
**Product Family:** Landing Gear  
**Piece Weight:** 0 lbs  
**Alloy Type:**  
**Alloy - Temper:** -  
**Description:** Various STC's  
**Quantity:**  
**Drawing No:**  
**Program:**  
**Program Customer:**  
**Addl Docs:**  
**Commercial:** Product Line: Landing Gear - Spare  
Primary OEM Application: Bell  
Manufacturer: DART  
Advertised on web?: Yes

### OPERATION

**Operation:** Outsource - 245  
**Description:**  
**Note:**

### DETAIL

| Part      | Operation | PO       | Job          | Container | Heat Code | Net Weight (lbs) | Gross Weight (lbs) | Quantity |
|-----------|-----------|----------|--------------|-----------|-----------|------------------|--------------------|----------|
| D3391-011 | Outsource | PO041016 | 177479       | S076677   |           | 0                | 0                  | 1        |
| D3391-013 | Outsource | PO041016 | 178458       | S077079   |           | 0                | 0                  | 1        |
|           |           |          | 178430       | S078351   |           | 0                | 0                  | 1        |
| D3391-015 | Outsource | PO041016 | 178431       | S079224   |           | 0                | 0                  | 1        |
|           |           |          | 178460       | S079256   |           | 0                | 0                  | 1        |
|           |           |          | <b>Total</b> | <b>5</b>  |           | <b>0</b>         | <b>0</b>           | <b>5</b> |

Driver Signature

Customer Copy

Plex 9/17/18 9:03 AM dart.lavoie.chantal